

Critical Conservation – Coral bleaching

Read the extract by our specialist team member Nick Ireland, Curator of SEA LIFE San Antonio, where he discussed marine conservation (protecting the sea) and particularly the issues affecting the corals in the coral reef.

From the information, what do you believe to be the 3 biggest impacts that humans are having on the oceans?

Students should choose their top 3 from broad areas given around negative uses of the sea as natural resources, humans dumping pollution or waste in the sea, or humans physically affecting the sea. An exemplar answer would include this type of answer as one of their choices:



When humans use fertilisers and pesticides on farming crops, these are washed into the waters by run off (when rainfall on the land washes from the surface), flowing into river systems and into seas, resulting into negative effects on creatures and their habitats.

In your own words, describe what coral bleaching is:

Coral bleaching is when... the coral starts to physically change due to rising sea temperatures. It starts releasing and expelling its symbiotic algae, which is its primary source of energy. These algae produce large amounts of oxygen, which happens because of higher temperatures and/or increased sunlight. These high oxygen levels inside the coral tissue become toxic to the coral. After bleaching, corals rely entirely on what plankton they can capture, which may not be enough to survive. They must eventually re-ingest the algae they depend on. Once this has gone, there is nothing left for it to survive on and so it dies.

Are there other ways (apart from coral bleaching) that the corals are being affected? What is the cause of this?

Corals are also being smothered by increased algae growth on the ocean floor. This is caused by agricultural runoff, where the fertilisers and pesticides used on farming are washed into the sea. These chemicals in the water cause changes to the amount of algae growth on the ocean floor, these algae then smother the corals.

Can you identify the two ways that the death of the coral affects the biodiversity of the ocean?



When the coral dies, the skeletons get washed away, The coral does not regrow after storm or wave damage. This means the coral reef becomes washed away, so the ability for fish to shelter within corals is significantly reduced.



Many species rely on the corals for food; without the coral being alive, there is less for these creatures to eat.

Challenge

Read the United Nations' Sustainable Development Goals:

<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

Which goal is particularly going to help protect the oceans?

Goal 14 is about conserving and sustainably using the oceans, seas and marine resources. Healthy oceans and seas are essential to human existence and life on Earth.

Use the 170 Actions to Transform Our World booklet to investigate the goals that are particularly going to help the coral reef.

What actions could people be taking that could help protect the coral?

- Don't buy jewellery and other items made from coral, tortoise shells or other marine life.
- Practise responsible recreational activities like boating, fishing, snorkelling and kayaking.
- Support organisations that protect the oceans

Extension activity

Write a letter to the United Nations' Sustainable Development Goals council - how should all countries be committing to protecting the oceans and sea life?

Within your letter, ensure that you:

- Identify 1-2 ways in which each person in the world could look to make a change to how they interact with the ocean
- Identify 1-2 ways that every country's government should be committing to ensure changes

